

ery systems were taken from a recent meta-analysis. Published UK costs for 2003, health care resource utilization and clinical data, and recommended discount rates were used (3.5% per annum on costs and outcomes). A lifetime horizon and third party payer perspective was taken. Only direct costs were considered. Extensive sensitivity analyses were performed. **RESULTS:** Treatment with CSII was associated with an improvement in life expectancy (LE) of 0.72 years compared to MDI (mean LE 17.37 ± 6.81 versus 16.66 ± 6.62 years). Quality adjusted life expectancy (QALE) improved by 0.59 years with CSII versus MDI (mean QALE 10.23 ± 3.89 versus 9.64 ± 3.69 years). Mean direct lifetime costs were $\leq 19,413$ more expensive with CSII treatment versus MDI ($\leq 81,115$ versus $\leq 57,015$). This produced an incremental cost effectiveness ratio of $\leq 32,753$ per quality adjust life year saved with CSII compared to MDI. The main difference between the two arms was in medication costs. Sensitivity analysis showed the results were robust under a range of assumptions. **CONCLUSIONS:** Improvements in glycemic control associated with CSII versus MDI lead to improvements in LE and QALE due reduced incidence of diabetes-related complications. CSII is cost effective compared to MDI according to accepted international thresholds.

UC2

PATIENTS' PREFERENCES FOR INGUINAL HERNIA REPAIR

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OBJECTIVE: Inguinal hernia repair is a common surgical procedure. Available evidence suggests that there are advantages and disadvantages to open and laparoscopic repair. The value that patients attach to the profile of outcomes is uncertain. The objective is to elicit patients' values for the profile of outcomes for each surgical technique. **METHODS:** A postal discrete choice survey was developed containing 7 attributes with 3 levels each, identified from the literature, expert opinion and a pilot study. A fractional factorial design reduced the number of scenarios to 18, using SPEED. The scenarios were systematically paired into 9 binary choices to derive an efficient design (orthogonality, level balance, utility balance and minimal overlap). Respondents were asked to choose operation A or B in each pair-wise choice and indicate the strength of their preference. Dominance and consistency tests, and a ranking exercise were also included. Results were analysed in STATA using a random effects probit model. The study sample was 50 post-operative patients (25 laparoscopic, 25 open) and 50 patients waiting for an inguinal hernia repair at one hospital. **RESULTS:** In total, 63% of patients returned the questionnaire, (18 post-laparoscopic, 10 post-open and 35 waiting). The mean age of respondents was 53 years (range: 25:87), 58% were retired. Initial analysis of complete responses, based on the sign and significance of the regression coefficients, indicated patients prefer operations with: 1 overnight stay ($\beta = 0.446$) to those with 0 or 2+ nights; least risk of operative-complications ($\beta = -0.195$); longer return to usual activities ($\beta = 0.049$); least post-operative pain ($\beta = -0.042$); lowest chance of recurrence ($\beta = -0.033$); complications after the operation ($\beta = 0.031$); and, least long-term pain ($\beta = -0.009$). Overall the signs on the coefficients were consistent with a priori expectations. All attributes were statistically significant ($p < 0.01$). **CONCLUSION:** Patients value those attributes describing immediate care/outcome more than those that affect long-term outcome.

A FIVE-LEVEL VERSION OF EQ-5D

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OBJECTIVES: EQ-5D defines health in terms of 5 dimensions each divided into 3 levels, forming a classification of 245 states. The first level within each dimension corresponds to "no problem" and it has been suggested that the classification lacks scope for sensitivity. A 5-level descriptive classification offers advantages with smaller step sizes than is presently the case, leading to reduced ceiling effects. This paper reports on a study that compares self-rated health status in a patient survey using a modified 5-level descriptive classification alongside the conventional 3-level EQ-5D. **METHODS:** EQ-5D was modified by inserting an intermediate level between the existing levels 1&2 and 2&3. No text labels were provided for these levels 2 and 4 of the modified version. A questionnaire containing both 3-level and 5-level responses systems was constructed. The order of presentation was varied with 50% presenting the standard EQ-5D format first; in the remainder the 5-level version was presented first. Questionnaires were mailed out to over 2000 individuals selected from the national electoral register. **RESULTS:** Data from 950 respondents were available for analysis ($n = 478$ for 3-5 version and 472 for the 5-3 version respectively). 64% of respondents were indifferent when asked which version they preferred. Of the remainder 65% preferred the 5-level version. Response errors were defined as a difference in response of more than 1 level between the 2 versions and these were generally less than 1%. There was a smaller ceiling effect and only 39% of respondents reported no problems on the 5-level version. The corresponding rate for the 3-level version was 50%. **CONCLUSIONS:** A 5-level response system for EQ-5D is feasible. The revised version produced a wider distribution of reported problems with less compacting towards level 1. Backwards comparability ensures that existing valuation sets can be used with both 3- and 5-level systems.

UC4

VARIATION IN ADL FUNCTIONING WITHIN BARTHEL INDEX SCORES:IMPLICATIONS FOR STROKE CLINICAL TRIALS AND PRACTICE

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OBJECTIVES: The Barthel Index (BI) is a validated activities of daily living (ADL) scale covering bowel and bladder functioning, grooming, toileting, feeding, transfers, mobility, dressing, stairs, and bathing. Scores range from 0–100 (0 = total dependence, 100 = complete independence). Mathematically, the BI allows for 5,146 possible profiles; however, many do not occur clinically due to hierarchical conservation of function. Published information on clinical representation of BI profiles and diversity within scores is scarce. We explored those issues and their clinical and economic implications. **METHODS:** A BI profile was defined as the score set for the ten ADL items. Complete BI profiles from 246 stroke inpatients were entered into a database and segmented by score. Data were validated against published findings. For each score, the number of unique profiles and their frequencies were calculated. The clinical and economic implications of differences in profiles at the same score were assessed. **RESULTS:** In total, 697 complete BI profiles were obtained from patient data, of which 246 were unique. Excepting the scoring extremes, the number of unique profiles at each BI score ranged

from 4–23 with the greatest variety in the mid-range. A small number of profiles usually accounted for the majority that occurred at each score. Differences in functioning were observed across 2–5 ADLs at scores of 5–15 and 90–95, and across 7–9 ADLs at scores of 20–85. **CONCLUSIONS:** Only a fraction (5%) of possible BI profiles occur clinically in stroke. Patients with the same BI scores may vary in ADL functioning and require different levels of clinical management. Depending on how ADLs are valued, preferences for disability states within scores may vary. In clinical trials, scores alone may not capture treatment effects that are important to patients. Properly adapted, a preference-based BI may constitute a more sensitive measure of effect than scores.

HEALTH POLICY I

HPI

THE RELATIONSHIP BETWEEN HEALTH INSURANCE TYPE AND COSTS OF PRESCRIBED DRUGS

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OBJECTIVES: To examine the relationship between health insurance type and prescribed drug costs for orthopedic outpatients of a regional hospital in southern Thailand. **METHODS:** Electronic data for 3117 prescriptions for osteoarthritis (OA) and rheumatoid arthritis (RA) new patients, whose age was 40 years or older and obtained their outpatient prescriptions from October 1, 2001 to September 30, 2002, were analyzed. Descriptive and linear regression analyses were used to analyze overall and subgroup (OA and RA) data. **RESULTS:** Results showed 94.6% of the patients had osteoarthritis. They were divided into three groups of health insurance type, which were Civil Servant Medical Benefit Scheme (CSMBS), Universal Coverage Scheme (UC), and Social Security Scheme (SSS). While the SSS and UC schemes paid by capitation basis, the CSMBS did by fee-for-service basis. The CSMBS and SSS patients received higher average cost per prescription and average cost per day than did the UC patients. The RA patients obtained more expensive drugs than did the OA patients. For OA patients, the CSMBS patients had the lowest number of drugs per prescription. However, the average cost per prescription and average cost per day of the CSMBS and SSS patients were significantly higher than those of the UC patients. For RA patients, the average cost per prescription and average cost per day of the UC patients were less than those of the CSMBS and SSS patients, while their numbers of drugs per prescription were slightly different. The regression analysis for all patients and each subgroup showed significant relationship between the patients' health insurance type and average cost per prescription and average cost per day. **CONCLUSIONS:** A significant relationship between the health insurance type and prescription drug costs was found. The UC patients tended to receive less expensive drugs than did the others.

HP2

EVALUATION OF CONDITIONAL REIMBURSEMENT AS A POLICY-INSTRUMENT

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OBJECTIVES: To promote rational drug use, governments may apply various instruments to aid health care professionals in clinical decision-making. Guidelines are a common approach, but

their impact on clinical practice is often limited. Therefore the Dutch government sometimes applies a stronger instrument: conditional reimbursement enforced by law, applied to drug groups listed on the so-called "Annex 2". We assessed process and outcomes of this instrument. **METHODS:** We quantitatively explored the effects of conditional reimbursement on drug use and costs for 33 Annex 2-drugs using the national GIP-database that administers funding decisions for people in insurance schemes. The qualitative process evaluation used document analyses, interviews (N = 70), and case studies (N = 6) to map perceptions of patients, physicians, pharmacists, insurers, manufacturers, and policy makers to attain insights into the performance of Annex 2. In focus groups we triangulated findings and identified improvements. **RESULTS:** The quantitative analysis showed that effects of conditional reimbursement varied with type of conditions and clinical setting. People responsible for implementation complained about administrative burden and lack of means to monitor if conditions for reimbursement were met (e.g. statins). An additional problem is that Annex 2 conditions lag behind evolving clinical knowledge (e.g. clopidogrel). The way in which conditions were operationalised appeared crucial for their implementation. When stakeholders had been actively involved in their operationalisation (e.g. TNF- β -blockers) implementation was successful, lack of consensus on the conditions was detrimental to effectiveness of Annex 2 policy. **CONCLUSIONS:** Overall, Annex 2 is considered a necessary instrument, although there are conditions to be met for a more effective functioning in the near future. There is a demand for more dynamic and pro-active communication strategy by the different Annex 2-actors to increase awareness of the existing policy and to narrow the gap between the clinical practice and policy regarding registration and reimbursement of drugs.

HP3

PHARMACOECONOMIC EDUCATION AT NON-US COLLEGES OF PHARMACY

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There is a global need for education in the field of pharmacoeconomics (PE). One is provided by Colleges of Pharmacy (COP's). Several surveys were conducted during the 1990's to determine the extent of pharmacoeconomic education at US-based COP's. One survey found that by 1999, 90% of US COP's provided PE education. On the other hand, only one study, conducted in 1997, was found that surveyed Non-US COP's. A total of 112 Non-US COP's in 44 countries were surveyed via e-mail; 41 COP's from 25 countries responded. Seventeen COP's from 13 countries reported providing PE education. **OBJECTIVE:** The objective of this study was to perform a follow-up study for Non-US COP's. **METHODS:** During January–May, 2004, surveys were sent to 291 Non-US COP's in 42 countries via e-mail using information from the World List of Pharmacy Schools (WLPS). Follow-up e-mails were sent to non-respondents and to respondents when clarifications of their responses were needed. **RESULTS:** A total of 89 COP's from 42 countries provided usable responses. A total of 46 COP's from 28 countries indicated that they provided PE education. Of these 46 COP's, nine provided education at the professional level only, 15 at the graduate level only and 22 at both levels. The median number of students enrolled at the professional level was 100, and 15 at the graduate level. The median number of class contact hours for PE education was 12 for professional students and 15 for graduate students. **CONCLUSIONS:** Fifty-one percent (51%) of respondents provided PE education compared to 41% from the 1997 survey. The majority of Non-US COP's that offered PE educa-